



AIMU - Marine Insurance Issues Seminar

Mega Ship Challenges

Murat Koksel, New York, May 7 2019

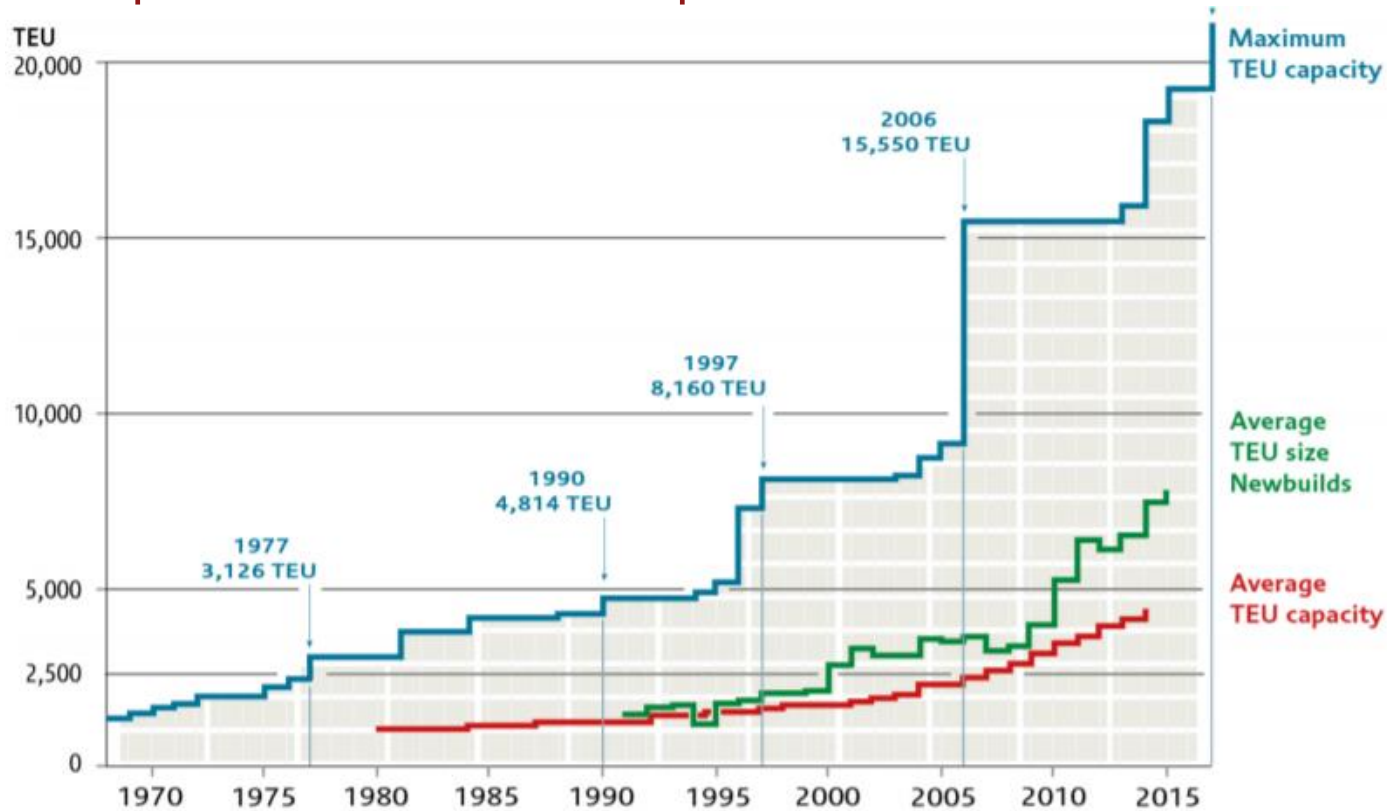
HAMBURG  SÜD

Agenda

- Evolution of Container Ships
- Mega Ships Advantages
- Disadvantages
- IMO 2020
- Conclusion



Development of Container Ship Size



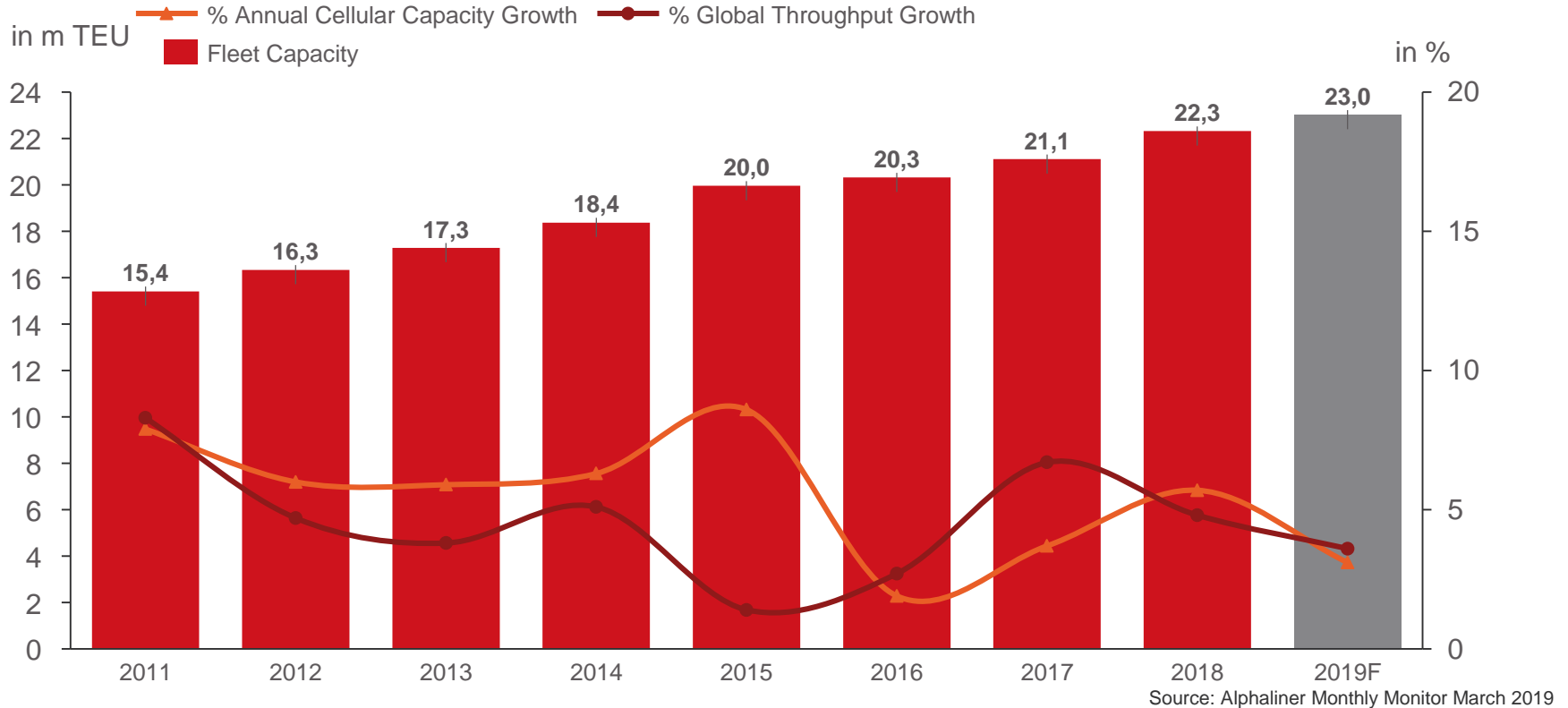
To Transport 19,000+ TEUs you would need

	1,100 Boeing 747 planes
	35x 8000ft long trains
	11,400 Heavy trucks

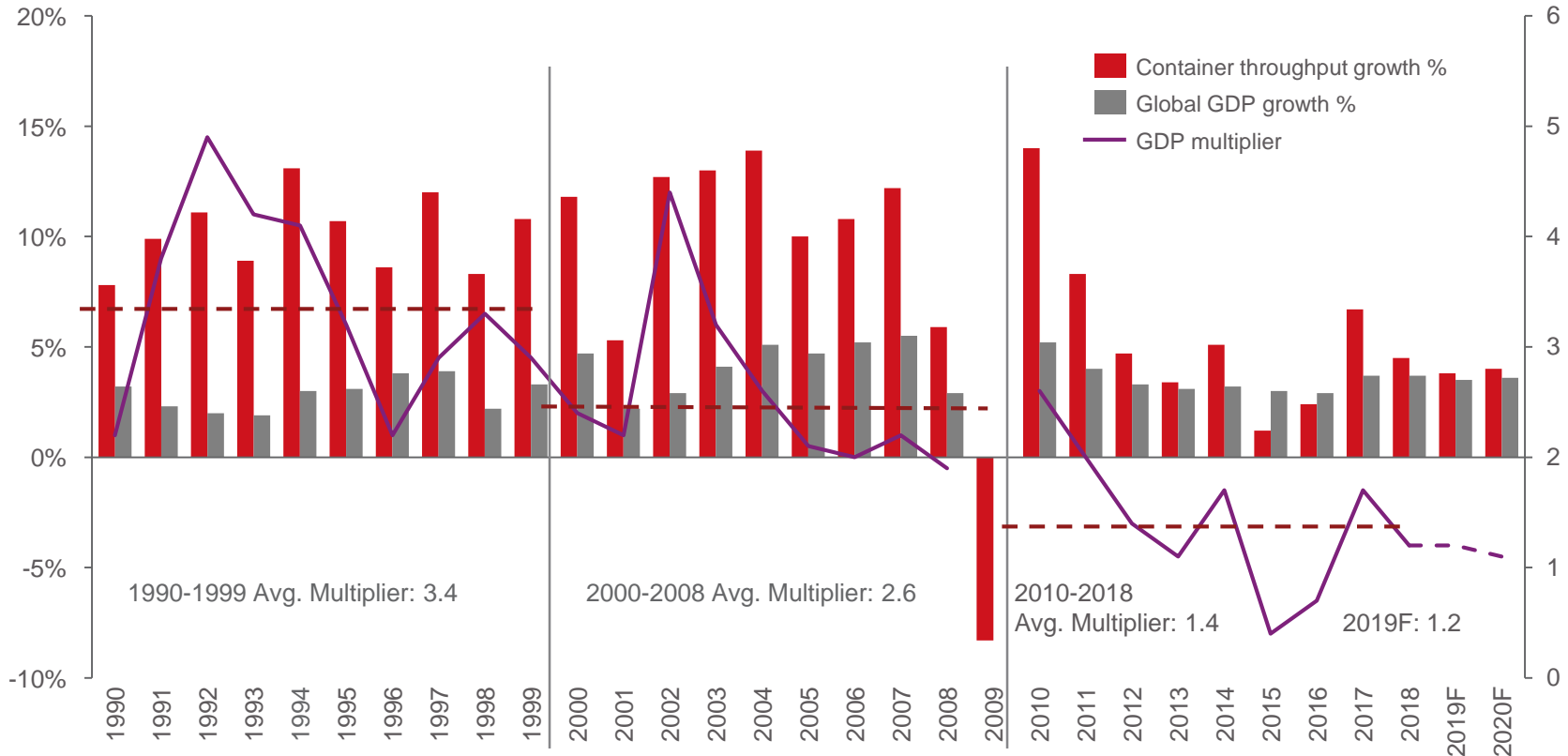
Source: OECD/ITF based on data from Clarkson Research Services

Cellular Fleet Growth vs. Global Throughput

2011-2019F (in %)



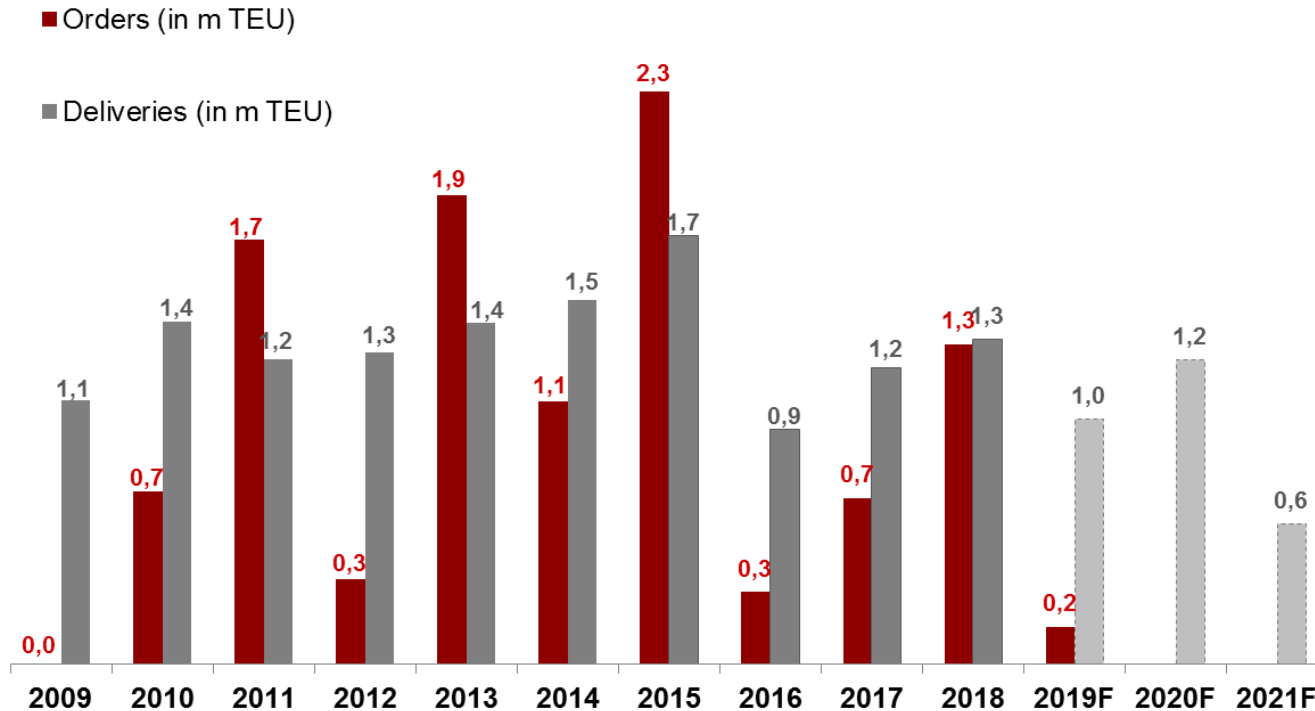
Global Container Throughput vs. GDP Growth (TEU-to-GDP Multiplier)



Source: Alphaliner Monthly Monitor March 2019

Development of Newbuilding Orders and Deliveries*

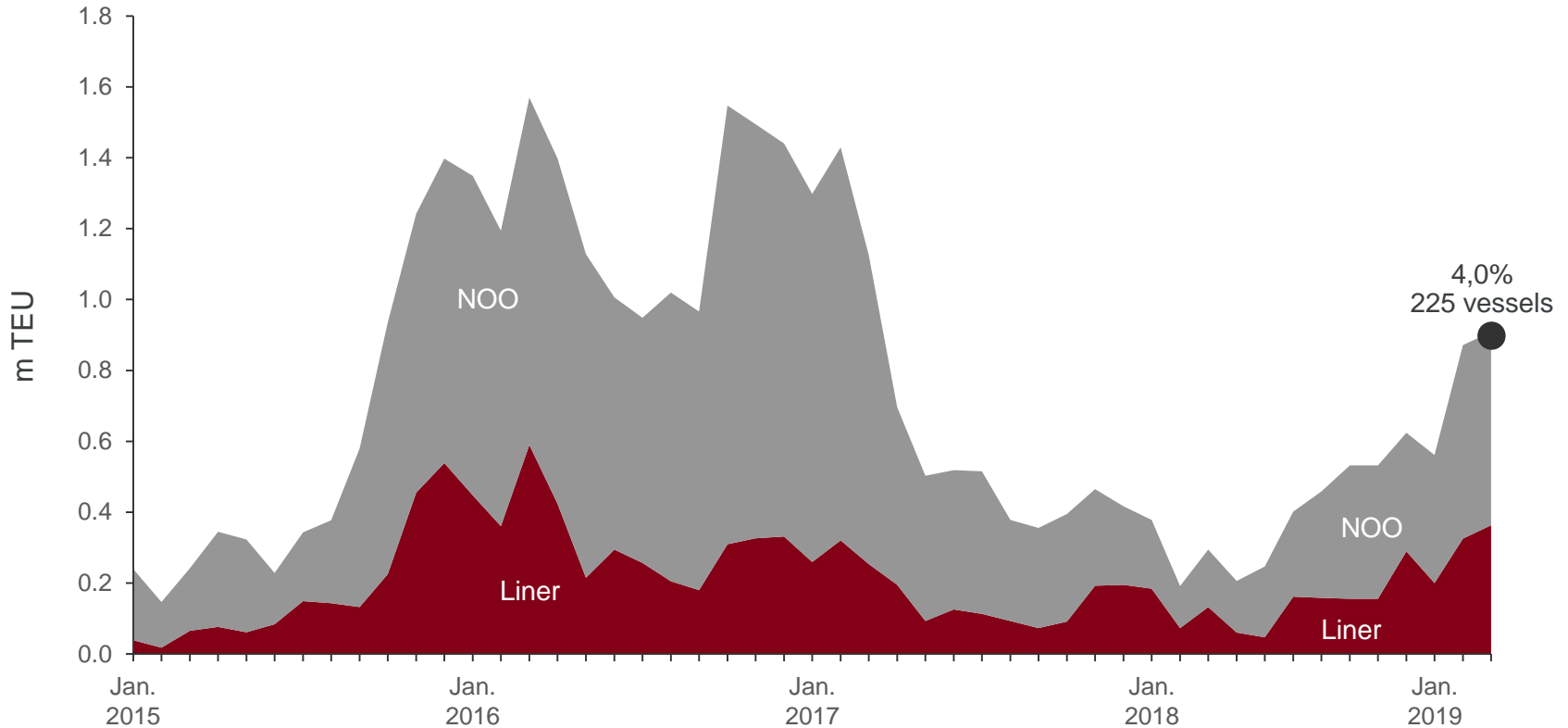
2009-2021F



*Forecast Figures are based on the current order book.

Source: Alphaliner Monthly Monitor March 2019

Evolution of Idle Containership Fleet 2015-2019



Source: Alphaliner Monthly Monitor March 2019

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- Topic
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The Booming of Demand

- Very strong double digit growth on head haul Asia to North America and Mediterranean trade (Bimco 2007)
- The long haul route from Asia to Europe and to Transpacific has required bigger ships to satisfy the demand to take advantage economies of scale.

Economies of Scale

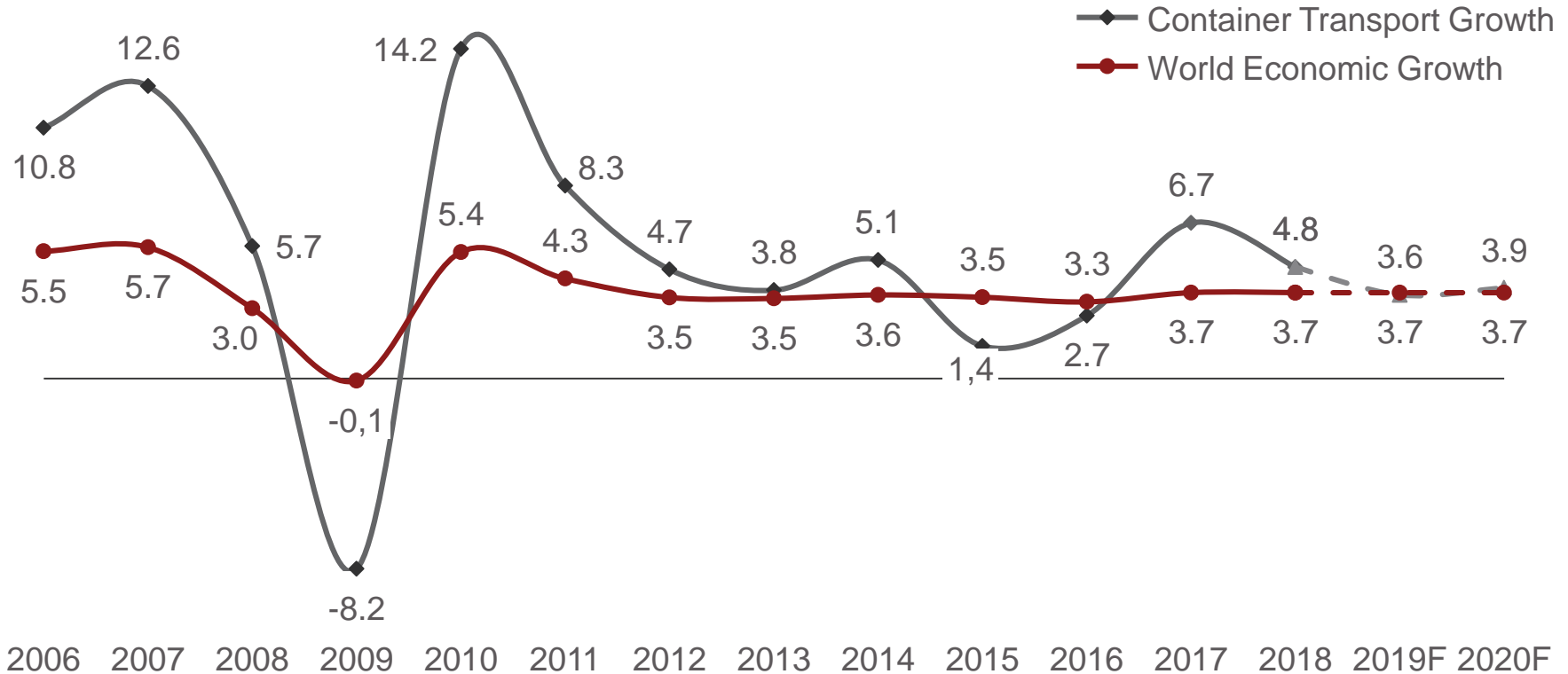
- Cost per TEU is decreased when the vessel capacity increases
- Lower fuel cost per TEU on mega ships
- Lower crewing costs per TEU
- Lower overheads, dry-docking, survey cost per TEU
- The trend of consolidation among shipping lines

Sustainability

- A well-loaded 20,000+- TEU vessel has the lowest fuel consumption per TEU
- Smaller CO2 footprint contributes to IMO's GHG reduction target
- Using more, smaller ships to reduce the strain on inadequate hinterland infrastructure would increase greenhouse gas (GHG) emissions per nautical mile

Growth in Container Transport / World Economic Growth

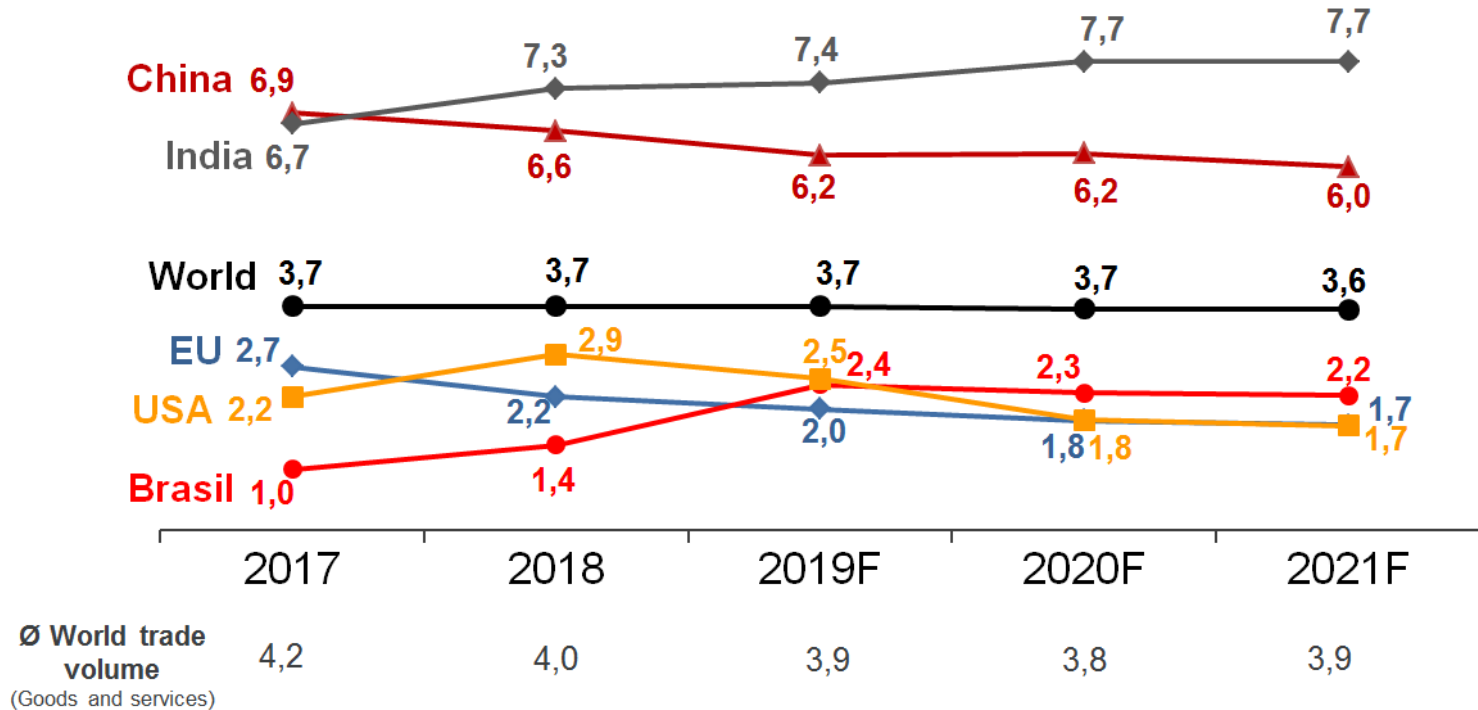
2006-2020F (in %)



Source: Alphaliner Monthly Monitor March 2019; Int. Monetary Fund (IMF), World Economic Outlook Jan 2019

Development of GDP Growth Projections

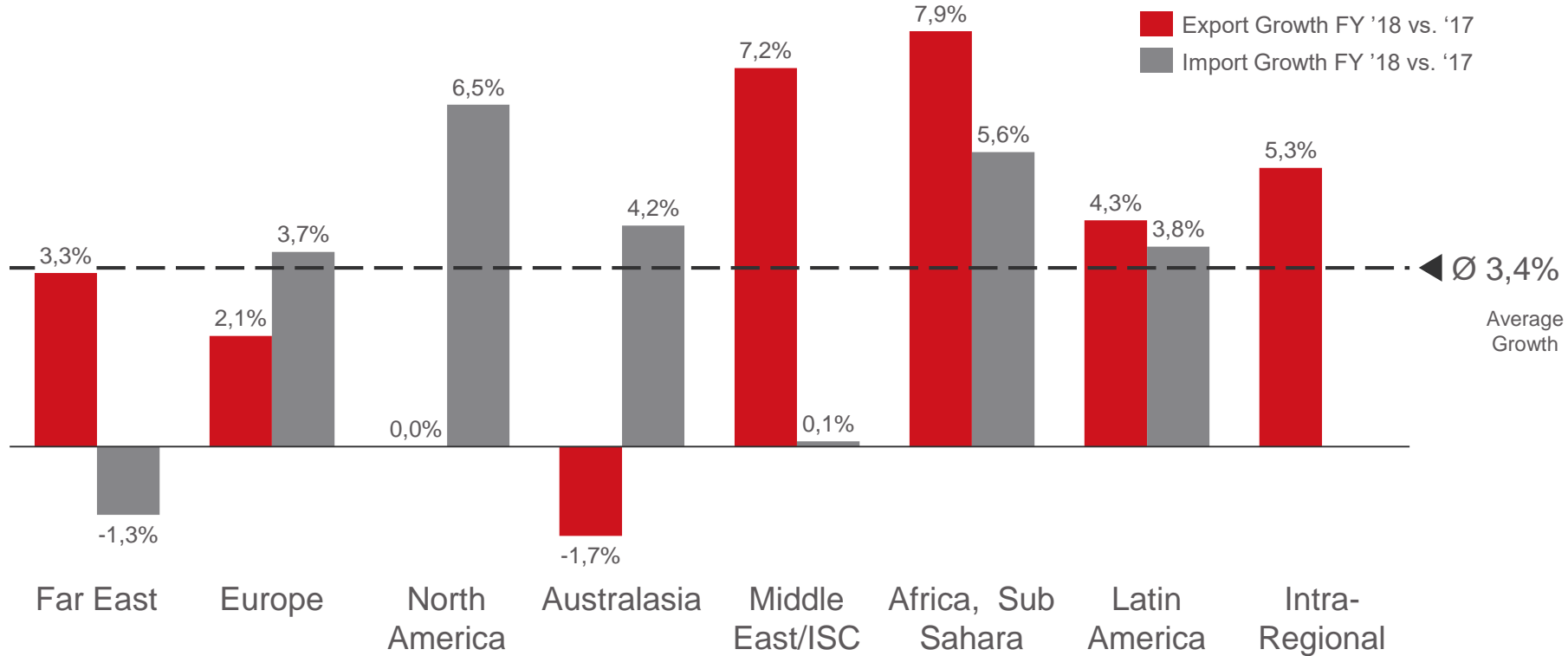
2016 – 2021F (IMF)



Source: International Monetary Fund (IMF), World Economic Outlook Jan 2019

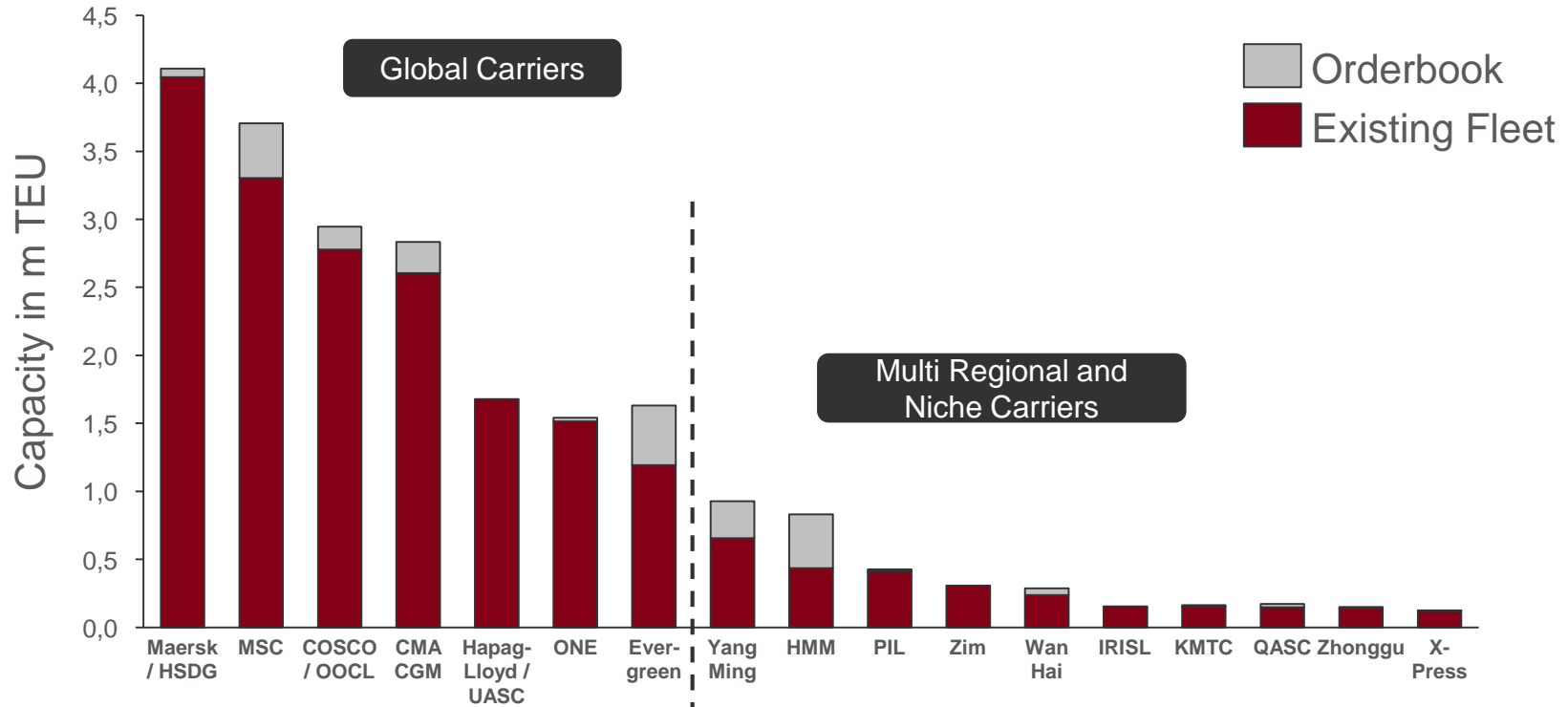
Dynamar Trade Growth

FY 2018 vs. 2017 (in %)



Source: Dyaliner Weekly No. 06 - 2019

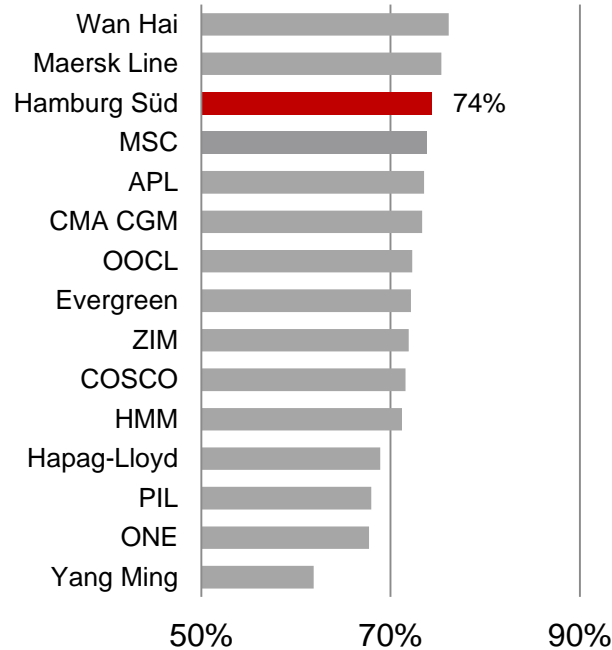
Carrier Consolidation



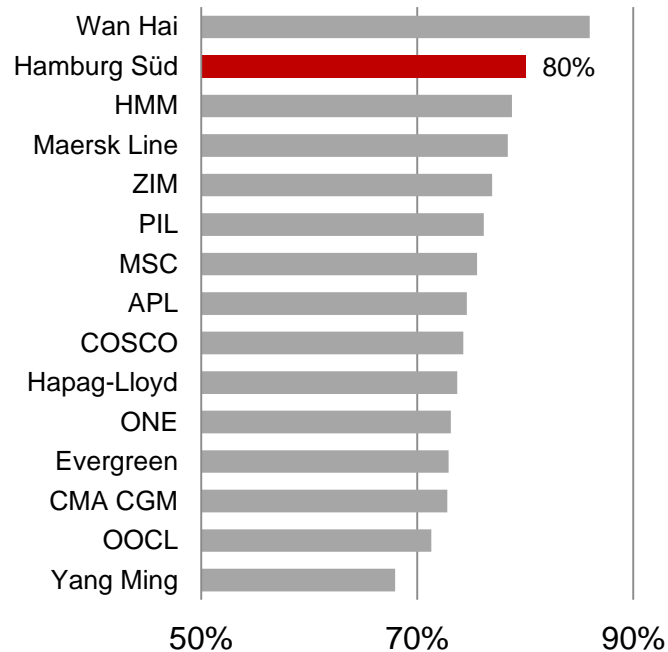
Source: Alphaliner Top 30, Monthly Alphaliner March 2019

Global schedule reliability of top container lines (+/- one day)

Global Top 15 ranking 2018 (Jan-Dec)



Global Top 15 ranking 2019 (YTD Feb)



Source: SeatIntel – Global Liner Performance Report March 2019

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Port Problems

- Draft limitations (including air draft) and funds for dredging/maintenance
- Berth strengthening and terminal yard space optimization
- Maneuvering space required, low quay utilization
- Tidal restrictions
- Shore-side facilities such as gantry cranes with sufficient reach to load/un-load containers
- Peak overload periods moving large numbers of containers within a short time. Afterwards piers may remain empty until the next mega boxers arrive
- Higher gate turn times for trucks
- Higher dwell times for imports before pickup/rail

Ship Design

- Propulsion plant required to transport a 22,000TEU vessel presents significant challenges
- Current container ships are almost exclusively single screw with slow speed diesel propulsion but as ship size increases (especially when operating at higher speeds of circa 25 knots) then propeller loadings are higher and we start to see diminishing returns in terms of propulsive efficiency
- Greater challenges with cavitation and erosion
- Stacking 10+ high will exacerbate existing stacking and lashing issues

Larger Risk and Environment Impact

- Consequences of a loss are far greater
- Greater hazmat volume, greater risk for misdeclared/undeclared dangerous goods
- Fire in a container stack is notoriously difficult to control and the scale of the implications increase with the size of the ship and volume of cargo
- Quantity of fuel oil on board mega ships

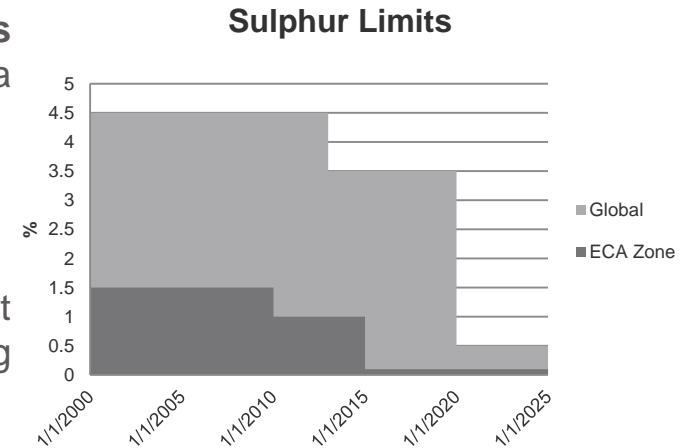
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IMO 2020 – Low sulphur regulation: background

- The decision for the 2020 sulphur regulation at the Marine Environment Protection Committee Meeting of the International Maritime Organization (IMO) was taken in October 2016.
- This new regulation states that as of 1 January 2020 **the sulphur content of fuel must not exceed 0.5% outside ECA zones.**
- With the lowering of the global limit, sulphur dioxide **emissions will be reduced more than 75% on average.** This is a significant benefit to the environment and to human health.
- Hamburg Süd welcomes this globally applicable regulation.
- We are a member of the Trident Alliance which is aiming at proper enforcement of sulphur regulations in the shipping sector.



- In order to be compliant with the new regulation, ships will have to use one of either options:

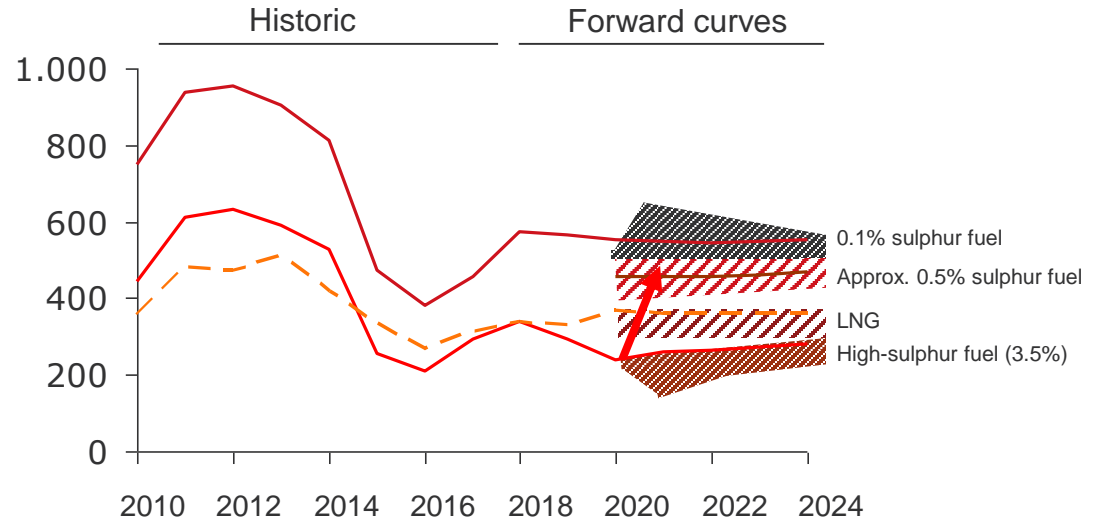
Alternative	Downside	Description
Low sulphur fuels	Uncertainty on the fuel price, expected to be significantly higher	Use of either marine gas oil, marine diesel oil or so-called hybrid fuels with a sulphur content below 0.5%.
Scrubbers	High installation costs	Use of high sulphur fuels. Scrubbers reduce the sulphur dioxide emissions in the exhaust gases equivalently to the regulatory limit.
Liquefied natural gas (LNG)	Require new built vessels	Use of LNG which does not contain sulphur.

- All solutions for the compliance with the regulation will come with **additional costs**

IMO 2020 – Cost implications

- External sources estimate the 2020 requirements could add an annual total cost of more than **USD 30 billion** for the container shipping industry.
- We expect average cost increases in the order of **180-230 USD/TEU for dry containers**, with significant variation depending on fuel price, length of transport, trade imbalances, etc.

Historic fuel prices and forward curves
USD/ton



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- Mega ships are an important mark for the development of shipping
- Advantages including economies of scale, the support of the market with positive signals, the trend of consolidation among liner operators
- Still has many challenges including lack of suitable port facilities, the uncertain global economy, larger risk and technical issues
- The right size, at the right time and in the right place
- Mega ship stakeholders must work jointly together to ensure safety of life and cargo at sea while protecting the environment